

## CEQA APPENDIX E

### BEST MANAGEMENT PRACTICES (BMPS)

USDA Forest Service. 2000. Water Quality Management for Forest System Lands in California: Best Management Practices. USDA Forest Service, Pacific Southwest Region. 138p.

#### SITE PREPARATION:

- BMP 1.1 Timber Sale Planning Process  
*Objective: To incorporate water quality and hydrologic considerations into the timber sale planning process.*
- BMP 1.2 Timber Harvest Unit Design  
*Objective: To ensure that timber harvest unit design will secure favorable conditions of water quality and quantity while maintaining desirable stream channel characteristics and watershed conditions. The design should consider the size and distribution of natural structures (snag and down logs) as a means of preventing erosion and sedimentation.*
- BMP 1.3 Determination of Surface Erosion Hazard for Timber Harvest Unit Design  
*Objective: To identify high erosion hazard areas in order to adjust treatment measures to prevent downstream water quality degradation.*
- BMP 1.4 Use of Sale Area Maps (SAM) and/or Project Maps for Designation Water Quality Protection Needs.  
*Objective: To ensure recognition and protection of areas related to water quality protection delineated on a SAM or Project Map.*
- BMP 1.8 Streamside Management Zone Designation  
*Objective: To designate a zone along riparian areas, streams and wetlands that will minimize potential for adverse effects from adjacent management activities. Management activities within these zones are designed to improve riparian values.*
- BMP 1.10 Tractor Skidding Design  
*Objective: By designing skidding patterns to best fit the terrain, the volume, velocity, concentration and direction of runoff, water can be controlled in a manner that will minimize erosion and sedimentation.*
- BMP 1.12 Log Landing Location  
*Objective: To locate new landings or reuse old landings in such a way as to avoid watershed impacts and associated water quality degradation*
- BMP 1.13 Erosion Prevention and Control Measures During Timber Sale Operations  
*Objectives: To ensure that the purchasers operations will be conducted reasonably to minimize soil erosion.*
- BMP 1.14 Special Erosion Prevention Measures on Disturbed Land  
*Objective: To provide appropriate erosion and sedimentation protection for disturbed areas.*
- BMP 1.15 Revegetation of Areas Disturbed by Harvest Activities  
*Objective: To establish a vegetative ground cover on disturbed sites to prevent erosion and sedimentation.*
- BMP 1.16 Log Landing Erosion Control

- Objective:* To reduce the impacts of erosion and subsequent sedimentation associated with log landings by use of mitigating measures.
- BMP 1.17 Erosion Control on Skid Trails
 

*Objective:* To protect water quality by minimizing erosion and sediment derived from skid trails.
  - BMP 1.18 Meadow (Little Merrill Flat Wetlands) Protection During Timber Harvesting
 

*Objective:* To avoid damage to the ground cover, soil and the hydrologic function of wetlands.
  - BMP 1.19 Stream course and Aquatic Protection
 

*Objective:*

    - 1) To conduct management actions within these areas in a manner that maintains or improves riparian and aquatic values.
    - 2) To provide unobstructed passage of storm flows
    - 3) To control sediment and other pollutants from entering stream courses.
    - 4) To restore the natural course of any stream as soon as practicable, where diversion of the stream has resulted from timber management activities.
  - BMP 1.20 Erosion Control Structure Maintenance
 

*Objective:* To ensure that constructed erosion control structures are stabilized and working.
  - BMP 1.21 Acceptance of Timber Sale Erosion Control Measures Before Sale Closure
 

*Objective:* To ensure the adequacy of required erosion control work on timber sale.
  - BMP 2.2 Erosion Control Plan
 

*Objective:* To limit and mitigate erosion and sedimentation through effective planning prior to initiation of construction activities and through effective contract administration during construction.
  - BMP 2.3 Timing of Construction Activities
 

*Objective:* To minimize erosion by conducting operations during minimal runoff periods.
  - BMP 2.7 Control of Road Drainage
 

*Objective:* Is to minimize the erosive effects of water concentrated by road drainage features; to disperse runoff from disturbances within the road clearing limits; to lessen the sediment yield from roaded areas; to minimize erosion of the road prism by runoff from road surfaces and from uphill areas.
  - BMP 2.12 Servicing and Refueling of Equipment
 

*Objective:* To prevent pollutants such as fuels, lubricants, bitumens and other harmful materials from being discharged into or near rivers, streams and impoundments, or into natural or man-made channels.
  - BMP 2.13 Control of Construction and Maintenance Activities Adjacent to Streamside Management Zones (SMZs)
 

*Objective:* To protect water quality by controlling construction and maintenance actions within and adjacent to any streamside management zone so that RCA functions are not impaired.
  - BMP 2.22 Maintenance of Roads
 

*Objective:* To maintain roads in a manner which provides for water quality protection by minimizing rutting, failures, side casting, and blockage of drainage facilities all of which can cause erosion and sedimentation, and deteriorating watershed conditions.
  - BMP 2.23 Road Surface Treatment to Prevent Loss of Materials
 

*Objective:* To minimize the erosion of road surface materials and consequently reduce the likelihood of sediment production from those areas.

- BMP 2.24 Traffic Control During Wet Periods  
*Objective:* To reduce road surface disturbance and rutting of roads. To minimize sediment washing from disturbed road surfaces.
- BMP 5.1 Soil Disturbing Treatments on the Contour  
*Objective:* To decrease sediment production and stream turbidity while mechanically treating slopes.
- BMP 5.2 Slope Limitations for Mechanical Equipment Operation  
*Objective:* To reduce gully and sheet erosion and associated sediment production by limiting tractor use.
- BMP 5.3 Tractor Operation Limitation in Wetlands and Meadows  
*Objective:* To limit turbidity and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion by excluding the use of mechanical equipment in wetland and meadows except for the purpose of restoring wetland and meadow function.
- BMP 5.5 Disposal of Organic Debris  
*Objective:* To prevent gully and surface erosion with associated reduction in sediment production and turbidity during and after treatment.
- BMP 5.6 Soil Moisture Limitations for Mechanical Equipment Operations  
*Objective:* The objective of this measure is to prevent compaction, rutting, and gullyng, with resultant sediment production and turbidity.
- BMP 5-7 Pesticide Use Planning Process  
*Objective:* To introduce water quality and hydrologic considerations into the pesticide use planning process.
- BMP 5-8 Pesticide Application According to Label Directions and Applicable Legal Requirements  
*Objective:* To avoid water contamination by complying with all label instructions and restrictions for use.
- BMP 5-9 Pesticide Application Monitoring and Evaluation  
*Objective:* To determine whether pesticides have been applied safely, restricted to intended target areas, and have not resulted in unexpected non-target effects.
- BMP 5-10 Pesticide Spill Contingency Planning  
*Objective:* To reduce contamination of water by accidental pesticide spills.
- BMP 5-11 Cleaning and Disposal of Pesticide Containers and Equipment  
*Objective:* To prevent water contamination resulting from cleaning, or disposal of pesticide containers.
- BMP 5-12 Streamside Wet Area Protection During Pesticide Spraying  
*Objective:* To minimize the risk of pesticide inadvertently entering waters, or unintentionally altering the riparian area or the wetland within Merrill Flat.
- BMP 5-13 Controlling Pesticide Drift During Spray Application  
*Objective:* To minimize the risk of pesticide falling directly into water, or non-target areas.
- BMP 6.2 Consideration of Water Quality in Formulating Fire Prescriptions  
*Objective:* To provide for water quality protection while achieving the management objectives through the use of prescribed fire.
- BMP 6.3 Protection of Water Quality from Prescribed Burning Effects  
*Objective:* To maintain soil productivity, minimize erosion, and minimize ash, sediment, nutrients, and debris from entering water bodies.
- BMP 7.3 Protection of Wetlands  
*Objective:* To avoid adverse water quality impacts associated with destruction, disturbance, or modification of wetlands.

- BMP 7.4 Forest and Hazardous Substance Spill Prevention Control and Countermeasure (SPCC) Plan  
*Objective:* To prevent contamination of waters from accidental spills.

## **CONSTRUCTION AND RECLAMATION:**

- BMP 2.2 Erosion Control Plan  
*Objective:* To limit and mitigate erosion and sedimentation through effective planning prior to initiation of construction activities and through effective contract administration during construction.
- BMP 2.3 Timing of Construction Activities  
*Objective:* To minimize erosion by conducting operations during minimal runoff periods.
- BMP 2-4 Stabilization of Slope Surfaces and Spoil Disposal Areas and  
*Objective:* To minimize erosion from exposed cut slopes, fill slopes, and spoil disposal areas.
- BMP 2-11 Control of Side cast Material During Construction and Maintenance  
*Objective:* To minimize sediment production originating from sidecast material during construction.
- BMP 2.12 Servicing and Refueling of Equipment  
*Objective:* To prevent pollutants such as fuels, lubricants, bitumens and other harmful materials from being discharged into or near rivers, streams and impoundments, or into natural or man-made channels.
- BMP 2-13 Control of Construction and Maintenance Activities Adjacent to SMZs  
*Objective:* To protect water quality by controlling construction and maintenance actions within and adjacent to any streamside management zone so that the following SMZ functions are not impaired.
- BMP 2-15 Diversion of Flows around Construction Sites:  
*Objective:* To ensure that all diversions are carefully planned, to minimize downstream sedimentation.
- BMP 2-18 Regulation of Borrow Areas:  
*Objective:* To limit disturbances and sediment production associated with gravel source development.
- BMP 2-19 Disposal of Right-of-Way and Roadside Debris  
*Objective:* To prevent blocking or damming of water by debris generated during construction that may act as barriers to aquatic life or cause sudden surges in high peak flow upon failure.
- BMP 2.22 Maintenance of Roads  
*Objective:* To maintain roads in a manner which provides for water quality protection by minimizing rutting, failures, side casting, and blockage of drainage facilities all of which can cause erosion and sedimentation, and deteriorating watershed conditions.
- BMP 2.23 Road Surface Treatment to Prevent Loss of Materials  
*Objective:* To minimize the erosion of road surface materials and consequently reduce the likelihood of sediment production from those areas.
- BMP 2.24 Traffic Control During Wet Periods

*Objective:* To reduce road surface disturbance and rutting of roads. To minimize sediment washing from disturbed road surfaces.

- BMP 2-27 Restoration of Borrow Pits:

*Objective:* To minimize sediment production from borrow pits and quarry sites.

- BMP 2-28 Surface Erosion Control at Facility Sites:

*Objective:* Reduce the amount of surface erosion taking place on developed sites and the amount of soil entering project area wetlands and streams.

- BMP 5.4 Revegetation of Surface Disturbed Areas

*Objective:* To protect water quality by minimizing soil erosion through the stabilizing influence of vegetation foliage and root network.

- BMP 5.5 Disposal of Organic Debris

*Objective:* To prevent gully and surface erosion with associated reduction in sediment production and turbidity during and after treatment.

- BMP 5.6 Soil Moisture Limitations for Mechanical Equipment Operations

*Objective:* The objective of this measure is to prevent compaction, rutting, and gully, with resultant sediment production and turbidity.

- BMP 7.3 Protection of Wetlands

*Objective:* To avoid adverse water quality impacts associated with destruction, disturbance, or modification of wetlands.

- BMP 7.4 Forest and Hazardous Substance Spill Prevention Control and Countermeasure (SPCC) Plan

*Objective:* To prevent contamination of waters from accidental spills.

